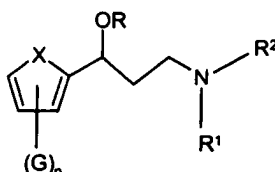


## IN THE CLAIMS

1. (original): A process for the preparation of a compound of Formula (1):



Formula (1)

wherein:

X is S, O or NR<sup>3</sup>, wherein R<sup>3</sup> is H or an organic group;

R is H or an organic group;

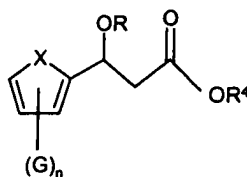
R<sup>1</sup> and R<sup>2</sup> each independently are H, optionally substituted alkyl or optionally substituted aryl;

G is a substituent; and

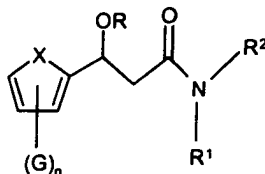
n is 0 to 3:

which comprises the steps:

- (a) reacting a compound of Formula (2) with a compound of Formula NHR<sup>1</sup>R<sup>2</sup> to give a compound of Formula (3):



Formula (2)

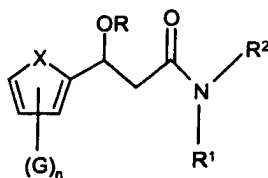


Formula (3)

wherein X, R, G and n are as defined above and R<sup>4</sup> is optionally substituted alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted aryl, optionally substituted heteroaryl or a combination thereof; and

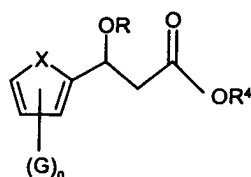
(b) reducing the compound of Formula (3) to give a compound of Formula (1).

2. (original): A process for the preparation of a compound of Formula (3):



Formula (3)

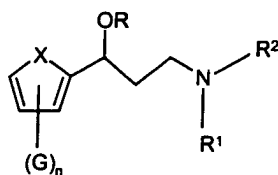
whereby a compound of Formula (2):



Formula (2)

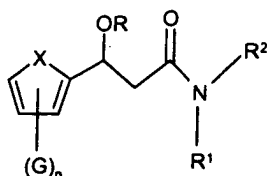
is reacted with a compound of Formula  $\text{NHR}^1\text{R}^2$  to give a compound of Formula (3);  
wherein X, G, n, R, R<sup>1</sup>, R<sup>2</sup> and R<sup>4</sup> are as defined in claim 1.

3. (original): A process for the preparation of a compound of Formula (1):



Formula (1)

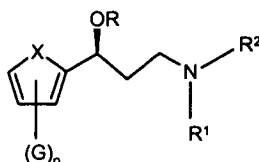
in which a compound of Formula (3):



Formula (3)

is reduced to give a compound of Formula (1): wherein X, G, n, R, R<sup>1</sup> and R<sup>2</sup> are as defined in claim 1.

4. (original): A process according to any one of claims 1 and 3 wherein the compounds of Formula (1) are of Formula (4):



Formula (4).

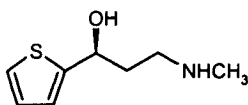
wherein X, G, n, R, R<sup>1</sup> and R<sup>2</sup> are as defined in claim 1.

5. (currently amended): A process according to any one of ~~the preceding~~ claims 1 and 3 wherein X is S.

6. (currently amended): A process according to any one of ~~the preceding~~ claims 1 and 3 wherein R is H or naphthyl.

7. (currently amended): A process according to any one of ~~the preceding~~ claims 1 and 3 wherein one of R<sup>1</sup> and R<sup>2</sup> is H and the other is methyl.

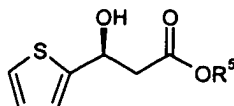
8. (currently amended): A process according to ~~any one of the preceding claims~~ claim 1 for the preparation of a compound of Formula (10):



Formula (10)

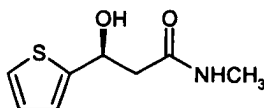
which comprises the steps:

(a) reacting a compound of Formula (9):



Formula (9)

where R<sup>5</sup> is optionally substituted C<sub>1-8</sub>alkyl, with methylamine to give a compound of Formula (11):

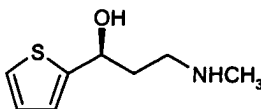


Formula (11)

and

(b) reducing the compound of Formula (11) to give the compound of Formula (10).

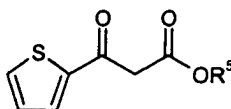
9. (currently amended): A process according to ~~any one of the preceding claims~~, claim 8 for the preparation of a compound of Formula (10):



Formula (10)

which comprises the steps:

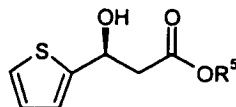
(i) acetylating 2-acetyl thiophene to give the compound of Formula (8):



Formula (8)

where R<sup>5</sup> is optionally substituted C<sub>1-8</sub>alkyl;

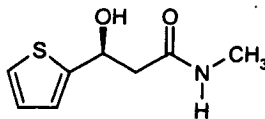
(ii) reducing the compound of Formula (8) to give the compound of Formula (9):



Formula (9)

where  $R^5$  is optionally substituted  $C_{1-8}$ alkyl;

(iii) reacting a compound of Formula (9) with methylamine to give a compound of Formula (11):

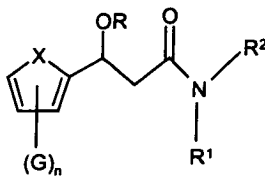


Formula (11)

and

(iv) reducing the compound of Formula (11) to give the compound of Formula (10).

10. (original): A compound of Formula (3):



Formula (3)

wherein

X is S, O or  $NR^3$ , wherein  $R^3$  is H or an organic group;

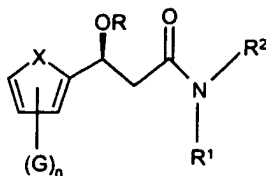
R is H or an organic group;

$R^1$  and  $R^2$  each independently are H, optionally substituted alkyl or optionally substituted aryl;

G is a substituent; and

n is 0 to 3.

11. (original): A compound of Formula (3), according to claim 10, of Formula (12):



Formula (12)

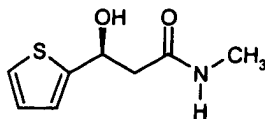
wherein X, G, n, R, R<sup>1</sup> and R<sup>2</sup> are as defined in claim 10.

12. (original): A compound according to claim 10 or claim 11 wherein X is S.

13. (currently amended): A compound according to ~~any one of claims 10 to 12~~  
claim 10 or claim 11 wherein R is H or naphthyl.

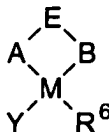
14. (currently amended): A compound according to ~~any one of claims 10 to 13~~  
claim 10 or claim 11 wherein one of R<sup>1</sup> and R<sup>2</sup> is H and the other is methyl.

15. (currently amended): A compound according to ~~any one of claims 10 to 14~~  
claim 11 of Formula (11):



Formula (11)

16. (original): A catalyst of formula:



wherein:

R<sup>6</sup> represents a neutral optionally substituted hydrocarbyl, a neutral optionally substituted perhalogenated hydrocarbyl, or an optionally substituted cyclopentadienyl ligand;

A represents an optionally substituted nitrogen;

B represents an optionally substituted nitrogen, oxygen, sulphur or phosphorous;

E represents a linking group;

M represents a metal capable of catalysing transfer hydrogenation; and

Y represents an anionic group, a basic ligand or a vacant site;

provided that at least one of A or B comprises a substituted nitrogen and the substituent has at least one chiral centre; and

provided that when Y is not a vacant site that at least one of A or B carries a hydrogen atom.

17. (original): A catalyst according to Claim 16 wherein A represents  $\text{NR}^7$ -,  $\text{-NR}^8$ -,  $\text{-NHR}^7$ -,  $\text{-NR}^7\text{R}^8$  or  $\text{-NR}^8\text{R}^9$  where  $\text{R}^7$  is H,  $\text{C(O)R}^9$ ,  $\text{SO}_2\text{R}^9$ ,  $\text{C(O)NR}^9\text{R}^{13}$ ,  $\text{C(S)NR}^9\text{R}^{13}$ ,  $\text{C(=NR}^{13})\text{SR}^{14}$  or  $\text{C(=NR}^{13})\text{OR}^{14}$ ,  $\text{R}^8$  and  $\text{R}^9$  each independently represents an optionally substituted hydrocarbyl, perhalogenated hydrocarbyl or an optionally substituted heterocyclyl group, and  $\text{R}^{13}$  and  $\text{R}^{14}$  are each independently hydrogen or a group as defined for  $\text{R}^9$ ; and B represents  $\text{-O-}$ ,  $\text{-OH}$ ,  $\text{OR}^{10}$ ,  $\text{-S-}$ ,  $\text{-SH}$ ,  $\text{SR}^{10}$ ,  $\text{-NR}^{10}$ -,  $\text{-NR}^{11}$ -,  $\text{-NHR}^{11}$ -,  $\text{-NR}^{10}\text{R}^{11}$ -,  $\text{-NR}^{10}\text{R}^{12}$ -,  $\text{-PR}^{10}$ - or  $\text{-PR}^{10}\text{R}^{12}$  where  $\text{R}^{11}$  is H,  $\text{C(O)R}^{12}$ ,  $\text{SO}_2\text{R}^{12}$ ,  $\text{C(O)NR}^{12}\text{R}^{15}$ ,  $\text{C(S)NR}^{12}\text{R}^{15}$ ,  $\text{C(=NR}^{15})\text{SR}^{16}$  or  $\text{C(=NR}^{15})\text{OR}^{16}$ ,  $\text{R}^{10}$  and  $\text{R}^{12}$  each independently represents an optionally substituted hydrocarbyl, perhalogenated hydrocarbyl or an optionally substituted heterocyclyl group, and  $\text{R}^{15}$  and  $\text{R}^{16}$  are each independently hydrogen or a group as defined for  $\text{R}^{12}$ ; provided that at least one of A or B comprises a substituted nitrogen and the substituent, represented by  $\text{R}^7$ ,  $\text{R}^8$ ,  $\text{R}^9$ ,  $\text{R}^{10}$ ,  $\text{R}^{11}$  or  $\text{R}^{12}$ , has at least one chiral center.

18. (original): A catalyst according to Claim 17 wherein A represents  $\text{-NR}^7$ -,  $\text{-NR}^8$ -,  $\text{-NHR}^7$ -,  $\text{-NR}^7\text{R}^8$  or  $\text{-NR}^8\text{R}^9$  where  $\text{R}^7$  is H,  $\text{C(O)R}^9$ ,  $\text{SO}_2\text{R}^9$ ,  $\text{C(O)NR}^9\text{R}^{13}$ ,  $\text{C(S)NR}^9\text{R}^{13}$ ,  $\text{C(=NR}^{13})\text{SR}^{14}$  or  $\text{C(=NR}^{13})\text{OR}^{14}$ ,  $\text{R}^8$  and  $\text{R}^9$  each independently represents an optionally substituted hydrocarbyl, perhalogenated hydrocarbyl or an optionally substituted heterocyclyl group, and  $\text{R}^{13}$  and  $\text{R}^{14}$  are each independently hydrogen or a group as defined for  $\text{R}^9$ ; and B represents  $\text{-NR}^{10}$ -,  $\text{-NR}^{11}$ -,  $\text{-NHR}^{11}$ -,  $\text{-NR}^{10}\text{R}^{11}$ -, or  $\text{-NR}^{10}\text{R}^{12}$  where  $\text{R}^{11}$  is H,  $\text{C(O)R}^{12}$ ,  $\text{SO}_2\text{R}^{12}$ ,  $\text{C(O)NR}^{12}\text{R}^{15}$ ,  $\text{C(S)NR}^{12}\text{R}^{15}$ ,  $\text{C(=NR}^{15})\text{SR}^{16}$  or  $\text{C(=NR}^{15})\text{OR}^{16}$ ,  $\text{R}^{10}$  and  $\text{R}^{12}$  each independently represents an optionally substituted hydrocarbyl, perhalogenated hydrocarbyl or an optionally substituted heterocyclyl group, and  $\text{R}^{15}$  and  $\text{R}^{16}$  are each independently hydrogen or a group as

defined for  $R^{12}$ ; provided that at least one of A or B comprises a substituted nitrogen and the substituent, represented by  $R^7$ ,  $R^8$ ,  $R^9$ ,  $R^{10}$ ,  $R^{11}$  or  $R^{12}$ , has at least one chiral center.

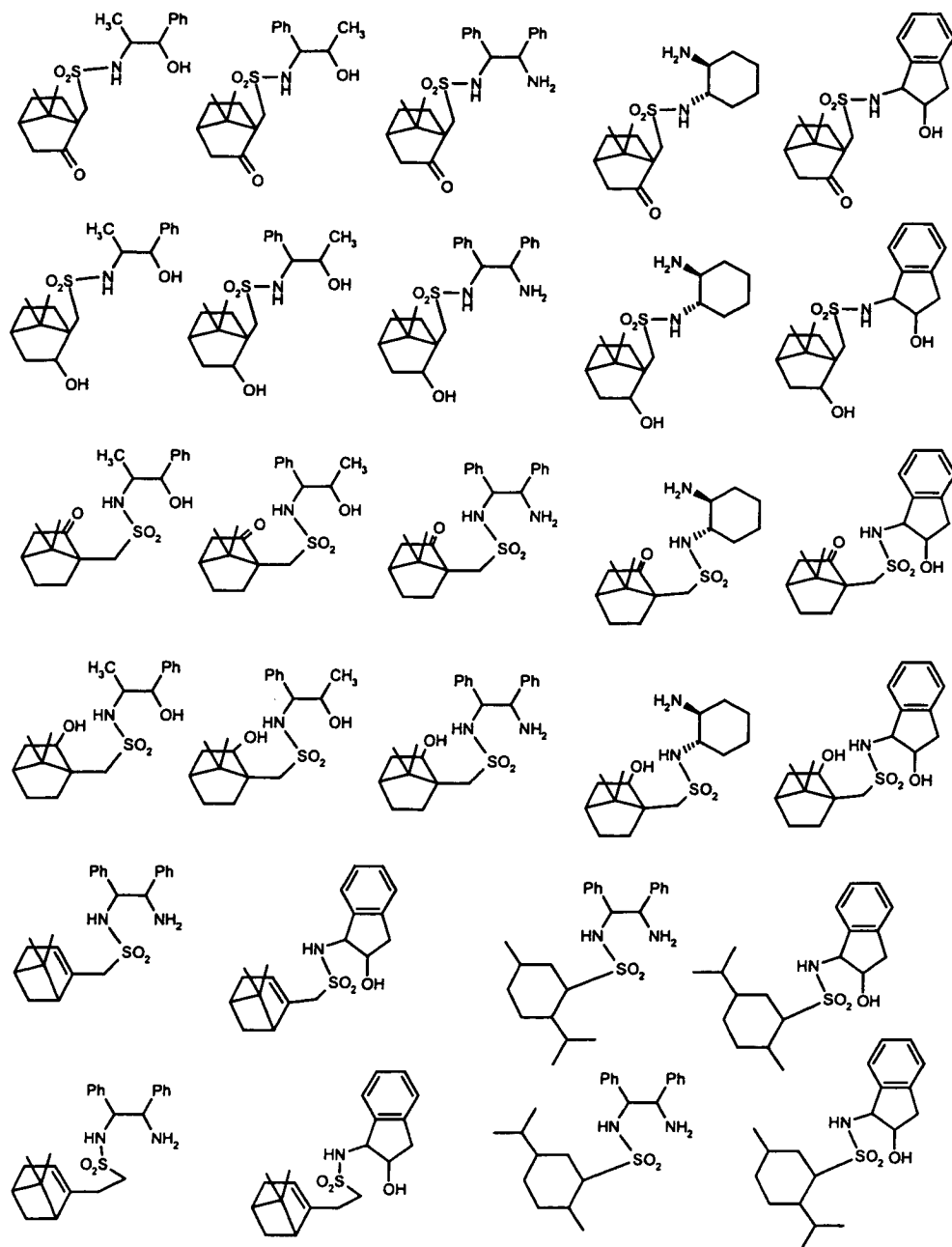
19. (currently amended): A catalyst according to ~~Claims 17 or 18~~ claim 18 wherein either A or B is present as a sulphonamide group represented by  $-NR^7$ ,  $-NHR^7$ ,  $NR^7R^8$ ,  $-NR^{11}$ ,  $-NHR^{11}$  or  $NR^{10}R^{11}$  wherein  $R^8$  and  $R^{10}$  are as hereinbefore defined, and where  $R^7$  or  $R^{11}$  is a sulphonyl group represented by  $-S(O)_2R^9$  or  $-S(O)_2R^{12}$ , that  $R^9$  and  $R^{12}$  is an optionally substituted hydrocarbonyl, perhalogenated hydrocarbonyl or an optionally substituted heterocyclyl group having at least one chiral center.

20. (original): A catalyst according to Claim 19 wherein one of  $R^7$  or  $R^{11}$  is (1R) 1-(7,7-dimethyl-2-oxobicyclo[2.2.1]hept-1-yl)methanesulfonyl, (1S) 1-(7,7-dimethyl-2-oxobicyclo[2.2.1]hept-1-yl)methanesulfonyl, (1R,2S) 1-(7,7-dimethyl-2-hydroxybicyclo[2.2.1]hept-1-yl)methanesulfonyl, (1R,2R) 1-(7,7-dimethyl-2-hydroxybicyclo[2.2.1]hept-1-yl)methanesulfonyl, (1S,2R) 1-(7,7-dimethyl-2-hydroxybicyclo[2.2.1]hept-1-yl)methanesulfonyl, (1S,2S) 1-(7,7-dimethyl-2-hydroxybicyclo[2.2.1]hept-1-yl)methanesulfonyl, (2S) 1-(6,6-dimethylbicyclo[3.1.1]hept-2-ene)-2-ethansulfonyl, (2R) 1-(6,6-dimethylbicyclo[3.1.1]hept-2-ene)-2-ethansulfonyl, (2S) 1-(6,6-dimethylbicyclo[3.1.1]hept-2-ene)-2-methansulfonyl, (2R) 1-(6,6-dimethylbicyclo[3.1.1]hept-2-ene)-2-methansulfonyl, (1R,2R,5R) 5-isopropyl-2-methylcyclohexansulfonyl, or (1S,2S,5R) 5-isopropyl-2-methylcyclohexansulfonyl, (1S,2S,5R) 2-isopropyl-5-methylcyclohexansulfonyl.

21. (original): A catalyst according to any one of Claims 16 to 20 wherein E is a linking group such that A and B are linked through 2, 3 or 4 atoms which are optionally substituted.



22. (original): A ligand of formula:



and diastereomers or resolved forms thereof.